VOLUME XIII NUMBER 10

THE ELEMENTARY SCHOOL TEACHER

JUNE 1913

CONTROL OF GERMAN INDUSTRIAL SCHOOLS

EDWIN G. COOLEY
Educational Adviser of the Commercial Club of Chicago

Dr. Roman's article in the February number of the *Elementary School Teacher* is at hand. Dr. Roman's book *Die deutschen gewerblichen und kaufmännischen Fortbildungs- und Fachschulen* contains nothing that is not in accordance with the general positions taken in the reports and recommendations of the present writer.[1] The publication of this article changes the situation, and I should like to make a few comments on its statements.

The table on p. 270 of Dr. Roman's article is a translation of one found on p. 23 in Lexis' *Das technische Unterrichtswesen*. This book was printed in 1904, and is not up to date in its description of the industrial school systems of Germany. In fact, this table contains one or more small inaccuracies in its description of the situation at the time the book was written. Further confusion has been introduced by the fact that, while Dr. Roman seemed to be quoting the table literally, he has omitted one or two facts found in it, and seems to be unaware of a number of changes that have taken place since the book was written.

It ought to be remembered that the discussion of the facts found in this table does not touch the real question at issue in Illinois. The table deals with the higher supervision of the technical schools of Germany; the supervision that all parties in Illinois

[1] See especially *Vocational Education in Europe*, report to the Commercial Club of Chicago, Chicago, 1912.

agree to refer to an industrial commission or state board. Further, there has been no radical difference of opinion here as to the composition and authority of this state board or commission. The discussion of the question of higher supervision in Germany, therefore, casts no light on the controversy in Illinois. It is interesting, however, as a statement of fact and as expressing a frame of mind.

In Professor Lexis' table the schools of Baden are stated to be under the control of the Ministry of Education, although at the time the book was written they were under the Ministries of Justice and of Education, and were directly managed by a national industrial commission whose president was a representative of the Ministry of the Interior. In this commission were always to be found representatives of the industries. Since this book was written, these schools have been taken entirely away from the Ministry of Education and placed under the Ministry of the Interior. This change took place on April 28, 1905.

In Professor Lexis' table, p. 23, the statement is made that part of the schools—industrial continuation schools, building-trade schools, art-trade schools, and higher commercial schools—are under the Ministry of Education. The next item states that the technical schools for the textile industries and fine mechanics are under the Ministry of the Interior. Dr. Roman omits this latter statement from his table on p. 270. The actual higher supervision is exercised by an industrial upper school council whose presiding officer and actual head is the president of the Central Department of Commerce and Industry. This gentleman, Herr Mosthaf, is the man to whom you go if you wish information about the industrial schools of Württemberg. He is not a schoolmaster, but a trained man of business. Other representatives of the Department of Commerce and Industry, school men, and men of affairs in this school council are under him. Dr. Roman contents himself with the statement that these schools are under the Ministry of Education, and that the director of the schools is always a member of the council. That means, he says, that he practically controls these schools. As the director of these schools is almost invariably a member of these boards in all Germany, it would appear from Dr. Roman's reasoning that they controlled all such schools in

Germany. The facts are that great care is taken to prevent the undue influence of the school man by the organization of the boards or commissions having the schools in charge.

Dr. Roman's statements with reference to Bavaria are also likely to confuse the reader. He states, p. 270: "In Bavaria the director of the high school and the district school directors have direct charge of the industrial schools. This accounts for the fact that Dr. Kerschensteiner has been able to bring Munich to the front in the trade-school development." The facts are that in Bavaria, including Munich, the high schools (secondary schools) are not under the management of Dr. Kerschensteiner or Dr. Kerschensteiner's board. The building-trade school and art-trade school in that city are under still another board. Leaving out the schools of college grade in Munich, there are three distinct bodies of school officials exercising control over different systems of schools, Dr. Kerschensteiner having the elementary and continuation schools under his charge.

I frankly admit the excellence of Dr. Kerschensteiner's work in Munich and consider him a wonderful man. I believe, however, that he has succeeded in his work with the continuation schools, not on account of his connection with the general schools, but in spite of it.

It should be noted in the first place that he is separated from the control of the secondary schools. It should also be remembered that Dr. Kerschensteiner has been in a constant struggle with the school authorities of Munich for many years over these schools, and that he has succeeded largely on account of his co-operation with local trade and business organizations. Dr. Kerschensteiner was under investigation in 1910, and the question was openly discussed in the leading papers of Munich as to whether he would be forced into retirement on account of the opposition of the authorities. Munich is not a case proving the advantages of having the same authorities control the cultural and vocational schools; it is the exception which brings out the advantage of the other plan. A further reason for making this statement lies in the fact that Munich is the one place in Bavaria that has exceptional vocational continuation schools, Bavaria, as a whole being behind the other

countries of Germany. Dr. Roman himself, p. 62, calls attention to the fact that "Bavaria is still far back in the supplying of industrial schools for girls."

The question of higher supervision is not the one agitating the people of Illinois. We are divided on the question of local boards of control. In Germany the only place where these schools are under the ordinary local board of control is Bavaria, and there the secondary schools—academic and technical—are under separate boards. The local bodies controlling these schools in Prussia, Saxony, Württemberg, Bavaria, and Hesse are always different bodies from the ones controlling the cultural school of the community. A typical local board is the one in Karlsruhe, Baden, which is made up as follows: (1) the burgomeister, or mayor, as president; (2) another representative of the state council; (3) the director of the industrial schools; (4 and 5) two representatives of employers; (6 and 7) two representatives of employees. This typical school celebrated its seventy-fifth anniversary in 1909.

Dr. Roman states that the administration of the schools of Prussia was taken out of the hands of the Ministry of Education and placed in the hands of the Ministry of Commerce and Industry in 1885. He intimates, if he does not state, that Bismarck did this on account of difficulties over religious matters. The official statement, however, was that it was done owing to the complaints of some of the practical men of Prussia, representatives of the gilds, etc. The schoolmasters of Prussia have continued to believe ever since that they could run these schools better than they are now being run. No one else seems to think so, however. The upper house of the Prussian parliament recently voted unanimously against putting them into the hands of the Ministry of Education. At a recent conference of teachers of industrial schools where Director Haese (quoted with approval by Dr. Roman) was present, and I think the presiding officer, it was voted by an overwhelming majority to retain the present organization. One prominent speaker spoke with great emphasis of their obligation to Prince Bismarck for taking these schools out of the hands of the Ministry of Education in 1885. I found no one connected with the management of practical affairs who thought the present dual arrangement should be changed

The man of affairs everywhere believes that separation from the general type of school is necessary to success.

It is misleading to try to make it appear, as in Dr. Roman's article, that the question at issue in Germany is a religious one. We know that the Prussian continuation school does not teach religion and that the Munich and other South Germany schools do. At the present time the schools of Munich and other places of South Germany where they do teach religion appear to be superior to many of those in Prussia. My observations lead me to believe that the teaching of religion has little to do with the matter. Some of the best continuation schools I saw were in Prussia, and some of the poorest schools I saw were in South Germany, and yet as a whole I am inclined to think that the continuation schools of Baden are superior to those of any other country of Germany.

A further reason for my belief that the religious question does not "cut any figure" in this matter is the fact that in Switzerland, where there is complete separation of Church and State, the authorities appear to be equally insistent upon a separate board of control for each of the various types of schools. You will find different bodies controlling the industrial school, the commercial school, and the academic school. In Dr. Biefer's *Methodik*, a recent authority on vocational schools, the statement is made that this question of separation is absolutely fundamental. He urges that the boards be made up of practical men—employers and employees—and educators, with the practical men in control. In Austria, where all the schools teach religion, the industrial schools have been placed under the control of the Ministry of Public Works. Here again some of the schools are of a very superior order and some of them distinctly inferior to those of Prussia. I think it is misleading for Dr. Roman to inject the question of religious instruction into the question of success or lack of success of the various systems of management.

In the beginnings of the movement for vocational schools every community has to some extent made use of the general school buildings and equipment and the ordinary school faculty, but everywhere experience has shown the necessity of getting away

from the general buildings and faculties and control. In Munich the continuation schools have their own buildings and equipment, and they are making every effort to hasten the day when the full-time teachers will devote their entire energies to the vocational school, and when the day-school teachers will be retired from service in them. It is significant that in Munich, where the one board is said to control, the movement for separate buildings and separate faculties is as pronounced as it is in Württemburg and Baden where they have separate boards of control. Anyone who will deliberately put forward as a reason for leaving these schools in the hands of the ordinary board that they wish to avoid having separate buildings, equipment, and special practically trained teachers betrays a lack of knowledge of the movement and a very imperfect conception of the problem of providing vocational education for our boys and girls. No one who understands the question will try to use the fag-ends of our present school system, in buildings, equipment, or faculty, for the assistance of the fourteen- to eighteen-year old boys and girls who are in search of practical education. No one who knows boys and girls of fourteen will believe they ought to be compelled to rely upon the fag-end of their energies after doing a day's work in the shop, in their efforts to secure a practical education.

In Dr. Roman's article and others there is talk about "class division in society," and about the "undermining of democracy." Suppose we analyze this proposition a little. Under either form of administration the boys and girls are cared for in schools supported by public taxation, administered by school authorities selected in the same way. Under either system you will find them placed in separate rooms, in many cases in separate buildings, and, where efficient, under especially trained teachers. No one seriously proposes to put all of the boys between fourteen and eighteen together in one building; no one seriously supposes that democracy would require us to have the carpenter apprentice taught by the same teacher who prepares another boy for the University of Chicago. He ought to be taught, of course, by just as good a teacher. The difference seems to lie in the fact that the local board to whom the teachers and principal of the schools are responsible would be a

separate one, made up of practical men or women, with the superintendent of schools. It is hard to say how this organization could endanger democracy or bring about a "class division in society."

The real question before us is this: Under our present school organization, perhaps through no fault of the schools, there are, in a community like Chicago, in the neighborhood of 40,000 young people between fourteen and eighteen who are not in school. Of this number about one-half are employed in remunerative occupation. Society and the school have faced this situation in the past with considerable complacency, now and then offering these boys and girls a chance to get some vocational training in any evening school. The proposition is now made to care for all of these young people, employing the same general public agencies, and we are torn to pieces over "the attempt to overturn the American public-school system." I hardly think it worth while to discuss the criticism further.

The real reason for division of opinion is that many people believe these boys and girls would be made more efficient by placing them in schools directly responsible to a body of practical men and women, men and women with whom and for whom the boys or girls will work in their future life. We are simply anxious to secure individual efficiency, and through this, social efficiency and good citizenship; and we believe the proposed organization will be best adapted to secure this end. The attempt to inject the question of "class division" is far-fetched.

Referring again to German experience, I will say that I have visited about two hundred schools in Germany, Austria, and Switzerland, and have never found any division of interest among the people on account of the separate system of management. I did not find any lack of co-operation in the common use of school property; in fact, I found this common use more general in Prussia where they have separate boards than I did in Munich where they have one. I found, too, that the continuation schools of Munich cost more than they do in any other place in Germany.

My investigation in Germany with my experience in America convinces me, as I have said, that "these schools should be separate, independent, compulsory day schools, supported by special taxes,

carried on usually in special buildings, administered by special boards of practical men and women, taught by specially trained practical men from the vocations, and securing the closest possible co-operation between the school and the factory, the school and the farm, the school and the counting-room, or the school and the home. Adaptation and co-operation are the watch-words for the new type of schools."

[This number of the *Elementary School Teacher* is devoted entirely to two topics: first, the general topic of industrial education; second, Mr. Courtis' tests. Both matters are so urgent that the editorial department is being omitted in order to bring out these papers before the summer months. The *Elementary School Teacher* does not in general enter into controversial matters and it has no judgment to offer with regard to the merits of the case under discussion by Mr. Cooley and Mr. Roman. The main point which impresses the editorial reader is the difficulty of disentangling the German situtation from itself, to say nothing of applying it to the American schools. In earlier numbers of this Journal the present writer has expressed very definite opinions with regard to the desirability of separating American schools. The present discussion certainly does not modify in any wise the belief which he has reached on the basis of such evidence as has been submitted up to this time.—C. H. J.]

CONTROL OF THE INDUSTRIAL SCHOOLS OF GERMANY ONCE MORE

FREDERICK W. ROMAN
University of South Dakota

The article by Dr. Cooley on "Control of German Industrial Schools" is before me. I, too, should like to make a few comments on its statements.

In my previous article I referred the reader to Lexis, *Das technische Unterrichtswesen*, pp. 17–25. The table in my article is patterned after Professor Lexis' table, p. 23. It was not planned to be a translation, hence I omitted the items which Dr. Cooley mentions. My reason for doing so was the fact that the schools which are under the Ministry of the Interior include one single institution for *Feinmechanik*, which is purely a state school. Such a school would not throw much light on our problem. The other schools included the *Fachschulen für Textilindustrie*. These schools have absolutely nothing to do with our question. To bring them into this discussion only obscures. It should be remembered that pupils on leaving the German public schools are in no wise prepared to enter a *Fachschule*. Dr. Cooley states that the Lexis' table contained one or more inaccuracies at the time the book was written, and that a number of changes have been made since 1904. Such statements are likely to be quite misleading. German schools have made great advancement since 1904, but no significant or marked changes have been made in the control since that date.

Further, Dr. Cooley states that the table deals only with the higher supervision of the technical schools of Germany. In this he is mistaken.

The criticism with reference to the schools of Baden is partly correct. There should have been added to my table the industrial continuation schools, which were put under the Minister of the Interior in 1905. The criticism implies that all the industrial schools were put under the Department of the Interior. Only the

one type of schools was affected by the change. The control of the commercial continuation schools, the continuation schools for agriculture, and schools for domestic science was not changed.

We must add that the industrial continuation schools of Baden are governed in the main by a board called the *Landesgewerbeamt.* This is not a local board. This board is composed of certain state officials and members appointed by the Ministry of the Interior. Direktor Sierck, editor of the school journal (*Zeitschrift für das gesamte Fortbildungsschulwesen in Preussen*), says that the local board is quite limited in its power. Speaking of the local board he says: "Seine Befügnisse sind durch die bestehenden detaillierten Vorschriften und durch das weitgehende Aufsichtsrecht der vorgeordneten Behörden ziemlich beschränkt."[1] Hence we see that local control by a separate board gets meager encouragement, even from this one type.

The change was made to establish a closer connection between these schools and the *Gewerbe und Fachschulen.* The latter are recruited to a limited extent by the former. The former aims to teach the mass of workers, the latter prepares foremen, superintendents, and captains of industry. Now if in this country we could put our industrial schools under the same control that such schools have in Baden, there would be some good sense in separating them from public-school management, because in that case one could be sure of intelligent supervision. It is not possible to establish such a connection with our privately endowed technical schools. The machinery of our state-supported higher technical school is not yet prepared to undertake the task either.

The organization in Baden can do this. There are quite a number of higher industrial schools supported by the state. The boards controlling them are specialists, and not politicians. There is nothing in the Baden law to justify a two-school board system here. One ignorant school board in an American city is quite sufficient. Two would be superfluous.

Whereas no great change has been made in control of the industrial schools in the last decade, it will be interesting to note a tendency to do away with the dual system in Saxony. The journal

[1] Sierck, *Das deutsche Fortbildungsschulwesen*, p. 68 (published 1908).

Die Fortbildungsschule (Leipzig), April, 1911, contains an article on "Der Dualismus im gewerblichen Unterrichtswesen." There the *Sächische Fortbildungsschulverein* and the *Sächische Leherverein* have both come out for a union of the two types of control. After giving the usual arguments for union, the paragraph closes by stating, "Ein Verschmelzung beider Schularten kann allen Beteiligten nur zum Segen gereichen." Then the article continues to give examples where the union has recently been carried through in such cities as Chemnitz, Plauen, Annaberg, and Zittau. The article closes by stating "Also der Weg zur Beseitigung des Dualismus ist gezeigt und beschritten."

What I said about the control of the schools of Württemberg was correct. But let us go more into detail this time. The highest authority is the Ministry of Schools and Churches. The next in rank is a board called the *Gewerbeoberschulrat.* This is composed of a member of the Department of Commerce and Industry and other members appointed by the King. The law requires this board to look after the higher supervision, as may be directed by the Ministry of Schools and Churches. The next in authority is the *Beirat,* which is composed of eighteen members appointed by the Ministry of Schools and Churches. This board is composed of certain officials of the district, directors and officers of higher trade schools, higher commercial schools, public schools, art schools, and representatives of various trades. Below this, each school has an advisory board.

In discussing the control of the industrial continuation schools, Sierck says (p. 68) in the book already mentioned above, "Wie aus dem vorstehenden ersichtlich, ist hier nicht das Ministerium für Handel und Gewerbe, sondern das für Kirchen- und Schulwesen die höchste entscheidende Instanz." He adds, "In Baden ist die Verwaltung des Fortbildungsschulwesens in ähnlicher Weise organisiert."

As stated in my previous article, the director of the public schools, being on both boards, wields an enormous influence. He has a life position, and politics do not influence his actions. He is always a well-trained scholar, and is usually the most influential man in the community. When disputes arise in everyday life, the

quarreling parties not infrequently decide to bring their witnesses and evidence to the schoolmaster instead of the court. Both sides argue their points of view. The schoolmaster renders a decision. That usually ends it. Thus without any legal authority whatever, he exercises an immense control over the grown-up folk. Why not? They were once his pupils and learned to respect his judgment, and to believe that his word was law.

My statements with reference to Bavaria have also been challenged. Let me quote again from Sierck (p. 70): "Die Sonn- und Feiertagsschule partizipiert an der Verwaltung der Volksschule, die gewerbliche und kaufmännische Fortbildungsschule steht als Nebenanstalt unter dem Rektorat der Realschule und die selbständigen Anstalten dieser Art stehen unter einem Lokalschulvorstand, beide unter der mit weitgehenden Befugnissen Ausgestatteten Kammer des Innern der Kreisregierung und in letzter Instanz unter dem Staatsministerium des Innern für Kirchen und Schulangelegenheiten." This proves that not all the schools are organized in connection with the elementary schools. Some are put under the rector of a *Realschule* ("secondary school"), others are organized independently under a separate board. All types are found in Munich. When I was in Munich I secured an official permit from Dr. Kerschensteiner to visit continuation schools, high schools, commercial schools, an art school, and a teacher's seminar. In all cases the boards including the rectors of the secondary schools were under Dr. Kerschensteiner. That date was 1910.

The functions of all these local boards are largely advisory. They have no such powers as are exercised by local school boards in this country. They can neither appoint nor dismiss teachers. They cannot plan the curriculum. Their chief duties consist in making arrangements with the constituents whom they represent to levy taxes, furnish buildings, heat, and light. The reader must understand that the Germans have little local authority in anything. They are accustomed to a paternal government. They are ruled by a highly centralized régime. Even the schools of all classes have the military air. Dr. Cooley says it is misleading for me to try to make it appear that the question at issue is a religious one. Let me refer the American reader to an authority that is

easily accessible. Read *Beginnings in Industrial Education* (Houghton Mifflin Co.), by Professor Hanus of Harvard University. On p. 150, he quotes a state school inspector who said, "The domination of the church is our greatest obstacle in the path of educational progress." Other similar quotations follow. Then again on p. 185 Professor Hanus says, "One of the most serious questions, which Bavaria and indeed all Germany has to deal with, is the one of freeing the public rural school from the incubus of ecclesiastical control." It is just this condition which led to the statement in my own book (p. 62) which Dr. Cooley cites. Dr. Cooley says that he thinks the continuation schools of Baden are superior to those of any other state in Germany. Many Germans have told me the same thing. When I would ask them how they explained it, the answer was invariably, "Baden is the most free from church control."

Dr. Cooley calls attention to the Prussian Conference of Teachers of Schools, that voted to retain the present dual organization. I have already stated that I talked with prominent industrial-school directors, who told me that the reason why they favored the dual organization was because that seemed the only way to keep the church from getting increased control. When I was in Germany, Massachusetts had the industrial commission to manage the schools. That led me to investigate the question of dual organization. I went to these same men who favored dual organization in Prussia to ask what they thought about the dual plan. They thought that a country not divided on the religious question would undoubtedly do better to have only one board. Further reasons have already been noted in the previous article.

Dr. Cooley mentions the official statement, which was given as the reason for separating the schools in 1885. The official statement was that the work of the industrial schools had a closer connection with the Ministry of Trade and Commerce than with the Ministry of Education (see *Zeitschrift für das gesamte Fortbildungsschulwesen*, May, 1911, p. 356). I was once confused over that official statement too, but these same directors assured me that the real reason was the existence of a constant fight between Bismarck and the clergy. Bismarck himself was at that time Minister of

Trade and Commerce of Prussia. The argument in his official statement helped him get the schools away from the clergy. The journal which I have just cited (pp. 356–75) gives a long list of extracts from speeches made in the lower house of the Prussian Parliament in 1911. These speeches prove beyond all doubt that the religious question is the main one at issue. Let me quote a characteristic extract from a member of Parliament: "Wir fürchten eben wenn Sie einmal den kleinen Finger in dem obligatorischen Religionsunterricht haben, dass Sie dann auch die Leitung der ganzen Fortbildungsschule in die Hand bekommen wollen." Toward the close of the article we read, "Vor allem wird der Religionsunterricht der Punkt sein, über den man schwerlich zu einer Einigung kommen wird."

In Bavaria it was the clerical party that forced the investigation of Dr. Kerschensteiner's work in 1910.

To argue for a two-board system in this country because of Germany's example, without giving the full causes for the separation, seems to me to be unfair to the American public.

May I add that Dr. Kerschensteiner mentions in his reports frequently that in the different stages of developing the industrial schools, it was found necessary to improve the elementary schools. Is it not clear that he would have been greatly handicapped if he had not had the elementary schools under his charge? Prussian reports state frequently that the industrial schools have improved only as the efficiency of the elementary schools has been raised.

If we had two boards in this country, there would at once be a dispute as to the cause of the inefficiency of the industrial schools. Each board would place the blame on the other. The people would join the contest. Instead of a united community fighting ignorance, we should have the scene of well-meaning people fighting each other.

There is no reason to believe that a second school board would know more about industrial schools than the ones we now have. In the last analysis the same power that elects the first board will have to elect the second. This whole movement of dual organization looks to me like a political scheme to increase the number of officers at the expense of efficiency and economy.

GERMAN SCHOOLS

A REJOINDER

EDWIN G. COOLEY

In Dr. Roman's reply he relies, as in his former article, on the published opinions of certain schoolmasters in Germany. It is unnecessary for him to heap up proof that many German schoolmasters are perfectly confident of their ability to handle vocational education and general education both. We are familiar in Illinois with the same point of view. But vocational education is at least as much a problem of commerce and the industries as of general education, and the men and women, employers and employees, who are actually at work in the various trades and other employments must also be consulted as to the kind of training that is best for the new applicants for places in the particular occupation chosen.

In the "relatively small space" to which the editor's communication of May 5 not unreasonably restricts my reply, I cannot take each statement of Dr. Roman's and answer it in detail. I shall therefore refer only to two or three points. My difficulty in answering within a small space may be illustrated from the second and fourth paragraphs of Dr. Roman's reply. In the second paragraph he excuses the omission of certain types of vocational schools from his former table by saying that his concern is not with them, but with industrial continuation schools; while in his fourth paragraph he belittles an error of his in the same table by saying that this second omission did not concern all vocational schools, but involved industrial continuation schools only. He devotes much space in his reply to arguments which have to do solely with the division of authority between state and local boards (both vocational), which is not an issue at all in our present discussion; what we are talking about here is the division of authority between two local school boards, one general and one vocational. In his account

of the administration of the industrial schools of Württemberg he neglects to state that the Gewerbe Oberschulrat, which, as he says, is "composed of a member of the Department of Commerce and Industry and other members appointed by the king," is the real governing body, although responsible to the Ministry of Schools and Churches; and that this member of the Department of Commerce and Industry is the chairman, and the actual head of the whole organization.

Not to follow Dr. Roman up point by point, I may content myself with directing attention to the fact that, while details differ everywhere, there is throughout Germany a universal recognition of the necessity for some sort of separate organization for the vocational schools; and everywhere, but in Bavaria, as I showed above, these schools are directed by a board or committee on which the commercial or industrial interest is given the controlling power. Wherever the American visitor goes—to Baden, Württemberg, Hesse, Saxony, Prussia, Austria—he naturally applies to the Department of Education for his permit to visit schools, and everywhere but in Bavaria he finds that he has gone to the wrong department—that the work of industrial education is carried on under the Department of Commerce and Industry or of the Interior, or by a special commission, and that it is there he must go for information about these schools. My own personal experiences to this effect are confirmed by the results of the study of vocational education in Germany by the two most important commissions that have undertaken this work—the Wisconsin commission of 1908–11 and the Swedish commission of 1907–12. Both carried away the same impression that I received —namely, that vocational schools cannot succeed unless practical men of affairs—employers and working-men—are given a decisive part in their management. Charles C. McCarthy, who drafted the report of the Wisconsin commission, summarized its observations by saying that "the Germans have established, almost universally, local committees of business men, manufacturers, and workmen, who control these schools wherever they are." This is also the net result of the facts reported by Dr. Roman himself.

Dr. Roman goes even farther than most school men. He

evidently distrusts any management of any schools, whether general or vocational, by persons who are not school men. The seventh paragraph of his reply, as printed above, indicates the two steps in his program. First, we must drop the idea of a separate and specially qualified management for the new vocational schools. Next, we must drop the general board of education. This will leave us Dr. Roman's ideal—a system of schools with no interference from citizens. "One ignorant school board in an American city," he says in the paragraph just referred to, "is quite sufficient. Two would be superfluous." Here is the bureaucracy that so many secretly believe in. The only trouble with this doctrine is that it is grossly undemocratic and absolutely unacceptable to any American (or German) community.

I shall not analyze further the reply of Dr. Roman. Let me, however, speak of one of his comments on the situation in Germany. "The director of the public schools," he says, "being on both boards, wields an enormous influence." The proposed vocational school law in Illinois, which Dr. Roman criticizes, provides that every board of control for these schools, state or local, shall always have as one of its members *ex officio* the chief school officer, the superintendent of schools. Why does Dr. Roman not trust these superintendents to exercise the "enormous influence" on both general and vocational boards that he saw them exercise in Germany? Besides distrusting the management of public schools, by the business men, the workman, and the citizen in general, does he also distrust the American school-man? And, if so, on whom is he relying? The college professor?

INDUSTRIAL EDUCATION IN THE EARLY NINETEENTH CENTURY

F. R. ALDRICH
Russell, Kansas

One of the most important topics before the people today in the educational field is the subject of industrial training. We are often given to the idea that attention to industrial arts in the common or public schools is a late development. There is often more or less of a hesitancy upon our part to introduce work of the kind into the curriculum, fearing that it is too much of an innovation, too radical a departure from the established traditions. Men of deep thought and long experience are generally conservative. Particularly is this true of the school man. But that conservatism is often based upon ignorance is easily shown when the causes of the opposition to this element upon the part of school men is carefully investigated. Training along lines other than the old established classics is by no means new in the history of the public schools of America. It has come down in one form or another almost since the establishment of the very first schools, and while perhaps it has never accomplished all the good which its authors have hoped for it, still it has certainly done enough to justify a further consideration, and its retention in our school system. It has never been, generally, in any period of our school history, a failure.

It is not the purpose of this article to go into a detailed history of industrial training even in the United States, but merely to note some of its phases during the early part of the nineteenth century. And there can probably be no better place to begin that investigation than in Boston, since it is here in the New England states that we find a very early and a comparatively original development of the school system. Here as elsewhere in this country, even down into the nineteenth century, schools were not as a whole free, and consequently not for the whole public. One peculiar feature was that there was no provision in the public- or free-school system for

the education of the child before entering the grammar schools. It was the custom to send the child to private schools at varying rates of tuition from the age of four to seven, when, having acquired a knowledge of reading sufficient to permit the reading of a testament, he might enter a public grammar school where tuition was free. These private schools naturally varied widely in their efficiency, in their manner of teaching, and in just what they taught besides reading. Some undoubtedly introduced more or less of the industrial element. But as a class it is evident that there was no great regularity, and as a whole, along industrial lines, if not in the regular work, probably not very much was accomplished. Every child of the better class received some instruction of this sort at home. Indeed, it was a long-established custom for the girls of the houeshold to be taught and to become expert in such arts as sewing and knitting, since a knowledge of both of these arts was of vastly greater importance to the home-builder in those days than now in an age of factories and machine production.

Some time within the first two decades of the century there began to grow up in Boston a feeling that primary schools also should be free and a part of the general public-school system. Many believed that the illiteracy of the city was due to the indifference of the poorer classes toward education, which was an ornament of the rich, or at least of the well to do, in their estimation, and a luxury, not a necessity, for the poor man. But gradually the belief in the utility of an education for every individual grew until, in 1818, primary schools were for the first time established by the city of Boston. At first the schools were in session the year around, but girls were allowed to attend only in the summer, when most of the boys did not attend. To the girls alone during this summer term industrial arts were taught, principally sewing and knitting. But then, as now, there were misgivings, as the half-apologetic, half-defensive report of a visitor shows: "I believe that a little manual exercise will induce the children to learn more and better and faster, and will give a spirit and an animation to whatever they perform." Not a word about the benefit of what is actually learned, but attention was centered wholly upon the general disciplinary training.

But, nevertheless, industrial training in Boston increased rapidly. It is true that the work was by no means considered upon a level with the other school work, but merely supplementary. A report of some of the work done mentions the following articles: 30 shirts; 12 pairs of sheets; 6 pairs of pillow cases; 26 pocket handkerchiefs; 8 cravats; 10 infant socks; 3 pairs of mittens. Many other small articles were noted, all of a very practical and useful nature. One cannot but speculate upon the comparative utility of the knowledge thus gained and the benefit which accrued to society at large.

In 1824 it was noted that the poor of the city were very deficient in a knowledge of sewing and knitting. One cause seems to have been that it was customary for the pupil to furnish all material. Many parents were too poor to furnish the requisite amount and quality, and many who were not too poor still were careless and indifferent about giving any aid that required any exertion or expenditure. The city, therefore, determined to furnish the material free, where it was found necessary. What a change of front in six years, when a committee had reported adversely to a proposition to make the primary schools free! It was in this period also that girls were allowed to attend school in the winter, and there thus came about a further extension of the industrial work. But this was undoubtedly the high tide of manual work in the Boston schools of this general period, for we find that four years later, while needlework is still strictly maintained in some schools, in general there has been a decline in this branch of education. From time to time there was agitation in regard to it. In 1839 the Grammar School Committee desired to have the work of knitting and sewing extended farther in that department, but the authorities were conservative, saying that as these arts were already taught in the primary grades, they saw no need of farther extension. In 1847 a resolution was passed for a more general introduction of sewing and knitting into the primary grades, but we are led to infer that this was more of an attempt to regain ground lost than to establish anything radically new. It is probable that the age of factories and machine work was already making its influence felt in Boston, and special industrial skill was beginning

to replace general industrial skill, especially in the making of garments and such articles as have been noted above.

Such, then, were the conditions in New England.

The school history of New York is unlike that of Boston. Schools and education in general were more backward. The history of education in New York in the early part of the nineteenth century is principally the history of the Public School Society. We may note, however, that as early as 1820 samples of sewing by the girls of the public schools were exhibited. In general this policy of industrial training to girls was defended upon the ground that none of the professions were then open to women. On the other hand, all the professions were open to the boys, and indeed a choice of some profession was deemed essential to worldly success. Therefore there seemed less need for manual training for any but the girls. And such reports as we have of the work actually done along industrial lines show that it was the work of the girls, and very similar to the work done in Boston, as an enumeration of the following articles will show. There were to be found shirts, shifts, sheets, samplers, cravats, night caps, thread cases, stockings, diaper towels, handkerchiefs, pillow cases, table cloths, towels, aprons, infants' shirts, neck gussets, wristbands, curtains, and ruffles. But here again we note that there is a feeling that the industrial element has for its purpose not alone the tangible product of industry, but to a great degree its disciplinary effect upon the mind of the student, as note the report of a committee in 1820: "The practical instruction in the industrial arts to which females must mainly look for subsistence at the present time . . . . has doubtless exerted a quiet but refining influence over many minds and hearts."

In Pennsylvania we find similar conditions. In some places we see a spirit manifested in advance of either of the two localities already discussed, as may be evidenced by some of the industrial work done in Lancaster. One school in particular advertised the following branches of work: needlework, tambour work in shading in gold and silver, filigree work, openwork, plain sewing, and sample work with painting and drawing. Here more than in the two centers considered above this industrial work was valued as having

for its purpose the fitting of the individual for his life-work, whatever it might be, whether of the professions or of a more lowly calling. Here also there was less distinction made between the boys and girls. In fact in the rules for the Boys' High School may be found these significant words: "The studies for pupils designated for college shall be directed accordingly; and in all cases, so far as consistent with the rules of the school, the study of each pupil shall be shaped to suit the occupation or profession for which he is designed." Who would suppose that this was a dictum laid down nearly three-quarters of a century ago, in 1849, and not the utterance of a modern champion of industrial training?

As we go westward, it would seem the ideas of industrial training become more liberal in form. In Boston it is in the primary schools and for girls alone; in New York still for girls, but for those of a more mature age; in Pennsylvania for both sexes, fitting for some definite life-calling. And as we go on westward, we shall find that ideas of industrial education in states, for example like Indiana, were broader still and extended strongly toward agricultural training and instruction. In the West and South we get a very practical application of the idea that industrial training should be such that a student might at the same time gain the mental benefits, the preparation for future life-work, and finally gain entire or partial support while at school from his labors. Boone says that "the idea of the Hofwyl institution in Switzerland had but recently been imported into this country and already the Fellenberg schools had been planted in a number of states, notably one each in Connecticut and in South Carolina, that were the precursors if not the progenitors of our later agricultural colleges." Several schools had been founded in New York before 1835 which tried to combine manual labor with the cultivation of the mind. In Ohio Oberlin Collegiate Institute, which afterward became Oberlin College, there was a plan by which both boys and girls could partly support themselves by daily manual labor, either within the buildings or in the fields.

The movement spread rapidly when it reached Indiana. One of the principal causes was doubtless the fact that this was purely an agricultural state and the idea that special agricultural training

should come with training in other subjects made a stronger appeal than in older regions of the East. Probably the frontiersman felt little need of a purely literary training, but like all other individuals, hailed with delight an indication that at last his special occupation was being recognized as all-important and worthy of having definite instruction given in it. Many schools sprang up which took the significant name of "farmers' academies." These schools seem to have been like other classical schools, with greater emphasis upon the industrial, particularly the agricultural. Soon the idea ran to an extreme, however, and numbers of schools got no farther than incorporation, while others sprang up with a mushroom growth, only to suspend operation within a few months. In general all these schools were but unsuccessful attempts to meet a little understood, but nevertheless recognized, need. The only institutions which seemed to meet success at all along these lines were the schools established for the benefit of the colored people, and in them, then as today, the industrial element was the great need and the essential life-spark that kept them alive.

So much, then, for the general conditions in representative states which stand for school progress throughout the North. As a whole we cannot but note some peculiar things in connection with this industrial training wherever it is found. As deep as the feeling for it seems to be where the work is found, still the sentiment for it does not seem to be altogether sincere. There is hardly a state where the work has not been undertaken to a limited extent, but its history seems to stop with those beginnings. No community or state during the whole first half of the nineteenth century actually took up the work as if it were considered the end of important instruction, but generally merely a side-line. The movers of the work are nearly always open to a suspicion of a lack of genuine and complete sincerity, because while professing to place this work in the forefront of importance they still cling to the idea of the superiority of the classical schools. This feeling may for a time be hidden, but sooner or later it appears when it comes to a question of educating their own children. Only for the Negro is it a panacea for all ills. Is it not possible that the deeply imbedded prejudice against this form of education has risen, for the most part uncon-

sciously, but nevertheless truly, from an attempt to reconcile their minds to equal race rights if not to race equality? One thing strengthens this feeling. In the investigation of the history of education throughout the southern states for this general period there is little or no mention of any industrial element in public education, except, perhaps, here and there the briefest reference to a public charge, an apprentice, or an orphan. But considering the social conditions during the whole of this period in the South, and the existence of the institution of slavery, it is not at all strange that the idea of industrial education was unpopular, since it was, in theory at least, putting the white child upon the level with the Negro, which was an unthinkable action.

The whole movement during this period was, however, founded upon the same basis that is generally believed today to be the only one which can promise success. That is, every such movement must be built upon community need. The phases of the problem have been and will continue to be the recognition of this need and the wise and proper satisfaction of it. The need has been there through all our national life. It was there during the special period with which this article has dealt. It is there today. Events today seem to point to a much more definite grappling with the problem in the near future than has ever been undertaken before. And in the attempted solution there can be little doubt but that the experiences of those who have tried and failed, perhaps, along these lines, will stand out like beacon lights, pointing out not alone the dangers, but as well the routes of safety.

BIBLIOGRAPHY

The Academician, Vol. I.
Pole and Lancaster. *Education.*
American Journal of Education, Vols. I and IV.
Annals of Education, Vols. II, III, IV.
Griscomb. *Monitorial Instruction.*
Reports of the Regents of the State of New York, 1835.
Report of the Superintendent of Common Schools, New York, 1834.
Report of the Visitors of the Common Schools, New York, 1834.
American Institute of Instruction, Boston, 1830.
Bourne. *History of the Public School Society of New York.*

Wickersham. *School History of Lancaster, Pa.*
New Jersey School Report, 1847.
Connecticut Common School Journal, 1839.
American Educational Society, *Annual Reports*, Nos. 18 and 19.
American Educational Society, *Quarterly Register*, 1829, 1833.
Boone. *A History of Education in Indiana.*
Educational Reports, Massachusetts, I and II.
Annual Reports of the Comptroller of Public Schools, Philadelphia, 1835–42.
Martin. *Evolution of the Massachusetts Public School System.*
Higginson. *History of the Public School System of Rhode Island.*
State School Report of Rhode Island, 1875.
Brayley. *Schools and School Boys of Old Boston.*
Wightman. *Annals of the Boston Primary School Committee.*
Dabney. *Education in the South.*
Lewis. *History of Higher Education in Kentucky.*
Merriam. *Higher Education in Tennessee.*
Bernard's Journal of Education, Vol. XXVII.
Graves. *Great Educators*, Pestalozzi, Fellenberg, Lancaster, Bell.
Lancaster. *The Lancastrian System of Education.*
Steiner. *History of Education in Connecticut.*
Pierson. *History of Education in Delaware.*
Ward. *History of Education in Connecticut.*
Bush. *History of Education in Florida.*
Parker. *History of Education in Iowa.*
Reed. *History of Education in Kentucky.*
Fay. *History of Education in Louisiana.*
Steiner. *History of Education in Maryland.*
Murray. *History of Education in New Jersey.*
Coon. *History of Education in North Carolina.*
Smith. *History of Education in North Carolina.*
Yetter. *History of Higher Education in Pennsylvania.*

THE RELIABILITY OF SINGLE MEASUREMENTS WITH STANDARD TESTS[1]

S. A. COURTIS
Liggett School, Detroit, Mich.

The question of the reliability of a single measure of a child's ability to write the answers to the addition combinations seems to the writer better shown by repeated measurements at intervals over a long period of time than by the creation of an artificial practice series. Accordingly he presents in Fig. 8 the scores of certain members of an eighth-grade class under his control. The period of time represented is three school years. The test the first year differed from that shown in Fig. 1 above in that it contained no zero combinations; that is, the test was slightly more difficult. For the other two years one or another of the three editions of Test 1 were used. Variations in external conditions were reduced to a minimum through mechanical timing and uniform procedure.

It will be noted that the curve based upon the class averages show marked fluctuations. Through October, November, and December, 1909, the curve is level. During this period the class was drilling on the combinations in the other operations, and the work did not influence the scores in addition; did not "transfer" in other words. Accordingly this is a good period to study the fluctuations in the scores of individuals. During the remainder of this school year there was direct practice on the addition combinations and the scores show corresponding increases. The first week in October, 1910, the addition test was given each day of the week, and during the following eight weeks, once each week, thus forming a direct practice series. As a whole the 1910–11 curve of progress after the first rise is fairly level during this period, with gain as before during the two remaining thirds of the year. The last year the tests were given but three times, little attention was

[1] Continued from Vol. XIII, No. 7, March, 1913.

paid to direct work on the tables, and most of the gain was made the first third.

Tabulation of the November to December differences (19 cases) gave an average variation of 6 points and a maximum of 13; of the December to January differences (Christmas vacation) an

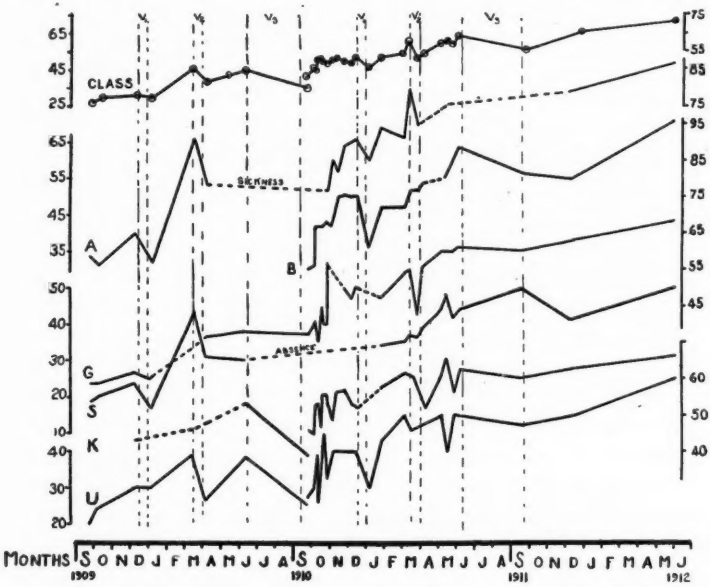

FIG. 8.—Curves based upon the average scores in Test 1, addition combinations, made by a class, and upon the individual scores of certain members in the class. Time scale, months from September, 1909, to June, 1912. Small circles upon class curve indicate the dates at which tests were given. V_1, V_2, V_3 represent the Christmas, spring, and summer vacations respectively. Scales at the right and left give number of answers written per minute. Note that a unit space in the class scale has twice the value of the unit in the other scales. For explanation of the curves see text.

average variation of 5 points. The average difference from one score to the next was for the practice week (97 cases), 4.7 points; 63 per cent of the differences were 5 or under; 25 per cent from 6 to 10 points, and 11 per cent from 10 to 17 points. For the eight-week period (124 cases) the average variation was 3.9 points;

74 per cent of these differences were less than 5 points; 23 per cent from 6 to 10 points, and 5 per cent from 10 to 17 points.

These figures agree very well with the results of the article under discussion and show that in general a single measurement of an individual will yield a value that will not differ more than 5 points from his true ability at the time. For two-thirds of the children the differences will be 5 or less. About one child in ten will have a markedly unreliable score, the amount of the deviation ranging from 10 to 30 points.

So far, the results fully confirm the data from the other study and with such general statements the writer has no quarrel. His contention, however, is that the fact of the great range in the nature and amount of individual variation makes such statements of little value unless rightly interpreted. The child is a plastic, developing organism. Its performance in any test is determined by a large number of factors. The nature of some of these factors, and the degree of the effects of all are entirely unknown. If the child's mind is in stable equilibrium, a single measurement (barring external accidents) will yield a reliable result, and a series of measurements will show but small chance variations from the score of the first test. If, however, the child's mind is in unstable equilibrium so that it is easily modified by experience, any one score may differ markedly from any number of previous or later measurements that may be made, and a practice series may yield results that it will be as foolish to combine into a single measure of ability as it is to express the sum of three apples and two potatoes by a single figure with the name of either. In one sense each and every measurement is absolutely unreliable in that it is impossible to predict, on the basis of any number of past measurements, what score an individual will make in the next test, owing to possible changes made in the mind of the individual by that past work. In another sense each independent measurement is also absolutely reliable; for it records the actual achievement of the individual at the time and under the conditions of the test. In other words, the writer believes each mental measurement should be treated only as symptom of internal conditions. An unusual score is a sign that a cause or causes are at work which must be evaluated

before the score can be rightly interpreted, but the score itself is a true measure of conditions at that instant, and, if the conditions continue, the score of a second test will agree with the first within two or three points. But no general rule can be made that will cover all the facts of individual variation, and the interpretation of one or more measurements of an individual must remain a matter of individual judgment.

A consideration of the individual curves given in Fig. 8 will make these points clear. Individual A the first week of school made a score of 33 and two weeks later of 31. In December before the Christmas vacation her score was 40, after vacation 32. The class average during the same period shows little variation. One may interpret these differences in these scores as chance variation, or one may see from the rest of the curve that this individual is easily affected by her experiences. When the class is gaining, she gains a great deal; during vacation she loses consistently. It is probable, therefore, that the change from 31 to 40 in December represents a real internal change, a "transfer" from the regular work in arithmetic. Her actual score at the end of any practice series will be unreliable by 10 or more points, since, during any period of disuse, her ability to add decreases by that amount. On the other hand, it is interesting to note that a large part of the gain made during the midyear term, 1909–10, was permanent, as her scores after vacation and after a long and serious illness agree. This individual makes a fine showing under drill, but the gain is largely specific and misleading.

Individual B, on the other hand, is of quite a different type and her curve is given as representing that of a girl of unusual ability. The opening week of school her score was 55, the Monday of the following week it was 56. On Tuesday it jumped without warning to 67, and on the remaining days of the week her scores were 67, 67, 67. The following Monday it was still 67, and in the three tests during the following month her scores were 67, 68, 67, a series of seven scores practically without variation. The second week in November her score again increased suddenly, this time to 75, and from this time on to April her scores were 75, 76, 75, 75, 61, 72, 72, 77, 77, 79. The low score, 61, marks the effect of the

Christmas vacation, but the loss was quickly made up. The remaining scores for May and June were 81, 86, 89, and for the next year 82, 80, 96. Such constancy and such sudden gains are by no means unusual. The writer can show many cases where the same score has been repeated week after week for five or six weeks at a time. It would seem, too, that in many children there are "psychological moments" when a little practice will produce marked gains which are held forever after, while even a large amount of practice at other times produces little or no apparent effect. Whether this is merely the much-discussed "plateau effect," or whether it reflects certain inner physiological changes, the writer does not know.

The other curves were chosen to illustrate various types of children. G is that of a stable individual of average ability; S shows the effect of absence and travel (a little tutoring was done on the trip but no school was attended during this period); K, a variable individual of more than average ability; U, of the member of the class weakest in addition. U gained steadily during the first two-thirds of the year. The March (1910) vacation and the summer vacation following both show large losses. The practice series, 1910, was marked by violent fluctuations in score, while for the succeeding five weeks a perfectly constant score of 40 was made each week. It should be noted that 40 is the level nearly reached at the two previous high points of the curve.

One cannot follow the score of many individuals in successive tests of addition, subtraction, multiplication, and division through several years without realizing that the number of factors determining any one score is very large, and that the question of reliability is not as simple a question as it might seem. It is certain that the possible unreliability of any single measurement must always be kept in mind; it is equally certain, also, that nine times out of ten a single test reflects the true conditions accurately. It is granted that a series of twenty-five tests will reveal additional facts in regard to an individual, but it is also to be remarked that it may take many other related tests and much experimentation to make the meaning of the additional facts clear. As a practical

expedient, twenty-five tests of each individual in the hundreds of abilities that must eventually be measured if there is to be efficient classroom teaching is out of the question. The writer is sorry the conclusions of the authors should have taken this form, and hopes that no teacher or superintendent just awakening to the value and possibilities of measurement and standardization will be discouraged by the statement. For the purpose of the study was based upon a misconception of the purpose of the tests, and the methods used are applicable only to more stable mental conditions than are found in the minds of growing children.

In this connection it is necessary to remind the reader that Test 1 is but one of a series of eight related tests and that, as used by the writer, the scores in all these tests are interpreted together. To quote from the folder of instructions describing the use of the comparative graph sheet, "The general plan is, therefore, to interpret any curve in the light of all the knowledge of the individual that can be obtained, and to check conclusions reached by further tests at the first opportunity."

Thus in Fig. 9 are given the curves of two seventh-grade individuals of extreme types. In the interpretations of such curves the scores made in Tests 7 and 8 should be considered first. For Test 7 the standard scores for the seventh grade are 13 examples attempted and 8 right. Individual A's score is unsatisfactory, as she has attempted 14 examples and has but 4 of the 14 right. Individual B's score, on the other hand, represents exceptional ability, for although she attempted but 11 examples, 10 of these were right, indicating unusual accuracy. Now it should be evident at once that since B actually has the ability to add, subtract, multiply, and divide in Test 7, it is of little consequence whether he knows his tables or not. The fact that in the addition combinations his score is that of a fourth-grade child has no significance whatever. He can actually add in long-column addition at a higher rate of speed than he can write the answers to the single combinations, and on the basis of much experience in this type of work, the writer is able to state that any attempt to increase his score in Tests 1 to 4 by practice is likely to act adversely upon Test 7. Yet it is certain that the low score of 35 in addition is not an "unreliable"

score; for it is confirmed by the scores in the other speed tests. Even the higher score in division is probably not due to chance variation, but to the greater ability of the individual in this process.

The unsatisfactory scores of individual A in Test 7, however, are not due to "tables" either; for her scores are two grades above standard in all except division, and are double those of individual B. Again these scores are reliable, for the four scores agree closely.

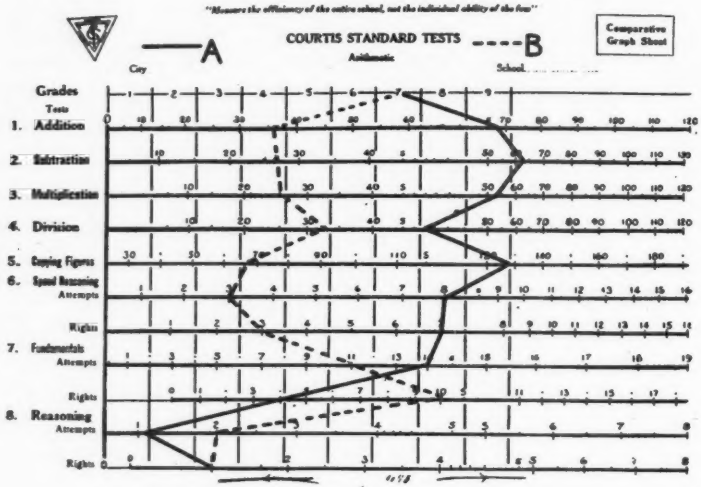

FIG. 9.—Curves of two individuals of extreme types. A (solid line) knows her tables very well, but works inaccurately in Test 7 (abstract examples in the four operations), getting but four examples right out of the 14 attempted. B (broken line) has only 4th-grade scores in the tables, but is able to work ten examples out of eleven correctly. Neither A nor B would profit by drill on the tables.

The apparent drop in division is due to the character of the scale at this point where the maximum of the development curve occurs, and the real difference is so small that it falls within the range of chance errors (5). A has been overdrilled on the tables. It should be evident that no amount of further drill on the tables could benefit A in the slightest, *unless* her past drill has been wholly written, so that the score is an indication of the specific ability to write the answers and not of ability to make ready response.

An oral test could be used to answer this question. It is probable, however, that A's defect is to be found in some of the other abilities involved in the longer computations, such as ability to "borrow and carry," to copy figures accurately, etc. Whatever the cause, it must be remedied by special work at the weak point, and no other remedial work will be efficient. The actual cause could easily be determined from an analysis of the mistakes made.

It should be noticed that in the interpretation of such departures from standard, balance of scores is more important than absolute size of score, and that so small a difference as ten points is without great significance. The average yearly progress is about seven points. Accepting the author's own figures, the scores of eight children out of nine will fall within ten points or within a grade and a half. More than two-thirds of a class will differ less than a grade. How accurately a single measurement thus places an individual on the scale of status and how great the need for measurement in teaching is shown by the statistics for the range of individual variation within the grades under present inefficient conditions.

In Fig. 10 is given the distribution of 7,625 eighth-grade scores in Test 1, also for comparison, the distributions of a number of groups of children in single classes from various cities, and of 118 eighth-grade class averages. It will be seen that the range is very great and fairly constant from city to city. The eighth-grade average score in addition is about the same everywhere.[1] As long as the differences between individuals in the same class amounts to as much as the entire average progress during the whole school life, a test that will enable a teacher to place a child on the scale of status as accurately as within ten points and on the basis of a single measurement, must be of very great value to the intelligent teacher. As long as present conditions continue, the need for the refinements of measures derived from practice series of twenty-five or more measurements of each individual is not apparent.

Such curves as those of B above raise a very important question, "What is the ideal form of the individual development curve?"

[1] The larger cities tend to emphasize the abstract at the expense of the reasoning work, and the average scores in Test 1 are from ten to fifteen points higher, with a corresponding range of individual variation.

In Fig. 11 is given the actual development curve for knowledge of the fundamental combinations in addition based upon the standard scores derived from the measure of many thousands of children (light solid line). A form in accordance with the suggestion made

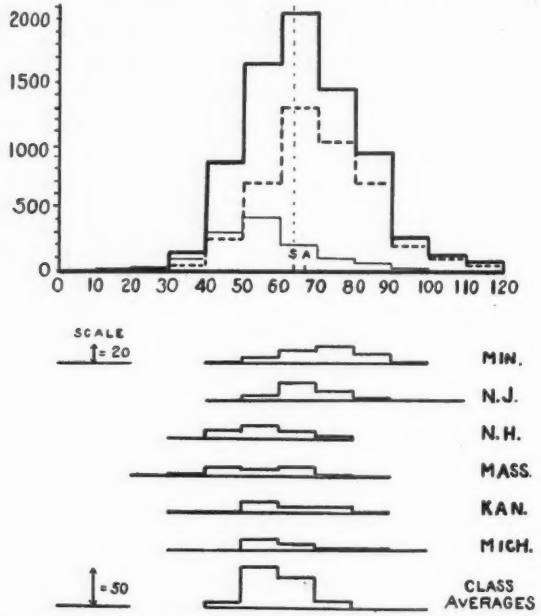

Fig. 10.—Upper part of figure, distribution of scores of 7,625 eighth-grade children in Test 1. Collected from schools in many states. Vertical scale = number of children making each score. Horizontal scale = number of answers written per minute. The range of the scores is from 15 answers per minute to 115 per minute. A = average score of the entire group; S = standard eighth-grade score.

Middle figures = distributions of individual scores in typical classes from various states.

Lower figure = distribution of 118 eighth-grade class averages; 80 per cent fall within a range of 20 points.

by the writer above—that the growth occurs suddenly and at certain periods only—is indicated by the broken line. The dotted line is a variation of this same idea; i.e., that the child should learn his table early and all at once. Slowly gathering evidence has led

the writer to suspect, however, that the ideal form for efficient teaching is that represented by the heavy line; that is, that under ideal conditions a child would acquire through concrete experience and oral drill a working knowledge of the simpler combinations. He would put this knowledge to immediate use in working abstract examples and perfect his knowledge by repeated use. But as there would be no drill on the separate combinations, before long higher habits of grouping, of unconscious short cuts, etc., would begin to form and ability to recall the separate combinations would

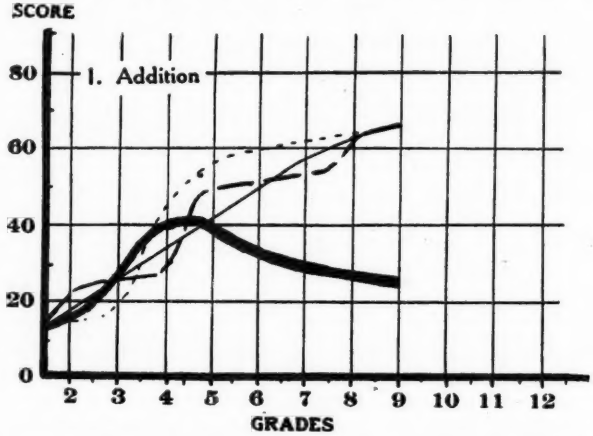

FIG. 11.—Various types of development curves for the ability measured by Test 1. Light, solid line = actual curve derived from measurement of many children. Heavy line = possible ideal form. For meaning of other lines see text.

decline. Whether this is the true explanation or not, it affords a working basis for valuable experimental work. At least two things are certain: (1) many children able to do eighth-grade work in Test 7 with fourth-grade knowledge of the tables are found, particularly among those who are exceptionally accurate: (2) a very great deal of useless, ineffective drill work on the tables is done in our schools. In Fig. 10, 762 or 10 per cent of the whole group have scores higher than the standard by 20 or more points, although very few of these really use the tables at anything like the standard rate.

One last point remains to be discussed; the question as to the correlation that exists between ability in Test 1 and ability in column addition. Fortunately in his attempt to derive units of measurement, the writer has had occasion to give a series of tests designed to measure the relative difficulty of various addition examples and that data is presented herewith.

In Table V is given a sample example from each of the series of tests. Tests A and H were the speed test shown in Fig. 1. Test B was composed of single combinations—practically the test shown in Fig. 1 with different spacing and the zero and 1 com-

TABLE V

SAMPLE EXAMPLES FROM A SERIES OF TESTS IN COLUMN ADDITION. EACH TEST WAS COMPOSED WHOLLY OF EXAMPLES OF ONE TYPE, AND WAS OF SUCH LENGTH THAT NO ONE FINISHED IN THE TIME ALLOWED

A	C	E	F	G	I	J	K	L
8	5			7				
3	6			5				
	2			8				
	7			9				
(B)			4	4	8	3	4	8
			7	3	3	49	557	9,659
7	(D)	9	2	9	4	66	892	3,778
4		3	2	7	4	75	347	9,484
	7	6	4	9	7	32	562	5,247
(H)	6	4	9	7	8	96	738	8,470
	2	8	2	8	7	85	658	7,966
9	7	2	5	5	6	64	273	6,323
2	4	3	2	2	2	59	797	3,277

binations omitted. Test C consisted of examples containing four figures, thus requiring three additions except as a person was able to "see" the sum of the four at once. Each of the other tests contained one type of examples, the examples increasing in length up to columns of 13 figures (12 additions). The examples in Tests I, J, K, L are all composed of columns of 8 additions each but increase from single columns up to examples of four columns. Such a series unquestionably measures the "ability to add."

The tests (except the speed tests) were mimeographed and given in regular class time by the class teacher. The time allowances varied from one minute for the simpler tests to three minutes

for the more difficult. Mechanical timing was used. Tests A to H were given on one day in rapid succession, from one to two minutes' rest being allowed between each trial. The remaining tests were given some weeks later. The scores were expressed as number of additions made per minute. The mistakes were scored as number of "columns wrong." The individual results are given in Table VI, also the averages for the class. Individuals A to U are eighth-grade girls and the letters represent the same individuals as in Fig. 8. Individuals X, Y, Z are teachers tested at the time the class was tested and also a year later for the purposes of this article. Y is the writer himself. Z is his assistant in charge of his statistical work, a bookkeeper with a business-college training and a year and a half of practical experience, an exceedingly rapid and efficient worker.

Even a casual inspection of the table will show that the correlation between ability in Test 1 and ability "to add" is no simple thing and like most other such relations between mental tests is wholly an individual matter. The results cannot properly be expressed in a single coefficient. For instance, individual A who stands highest in the speed Tests A, B, and H—the single combinations—falls to a rank of fifteenth when there are even three additions in a column and varies from eleventh to nineteenth in succeeding tests. B, on the other hand, is second in the speed tests and first in all other tests. At the other extreme, individual Q was seventeenth in the speed tests but is second highest in the four most difficult tests, and individual T was twentieth in the speed tests and was fifth in the last test. Between these extremes every degree of correlation is found. The correlation coefficient based upon the relative ranks of the 21 individuals in the first and last tests is $r = +0.43$.

The essential facts of the table and additional data derived from the same tests in other grades are presented graphically in Fig. 12. Test H is placed next to Test A in order that comparison may be easily made. A and H, it should be remembered, are two trials with the test shown in Fig. 1, one trial before and one after the first five tests in adding columns; that is, before and after eleven minutes' actual work in column addition. Every grade

but the sixth grade shows an increase in score and in the eighth grade the practice effect is comparable to previous results, 75 per

TABLE VI

COLUMN ADDITION

Scores in Number of Additions per Minute of 21 Eighth-Grade Girls

Test No.	A	B	C	D	E	F	G	H	I	J	K	L
A.....	85	60	33	26	23	24	22	86	36	30	25	25
B.....	77	54	50	52	54	50	42	82	70	60	58	56
C.....	77	50	30	36	33	24	24	75	36	28	32	29
D.....	73	53	48	47	40	48	39	80	46	44	39	40
E.....	72	41	37	41	45	44	42	88	44	36	38	28
F.....	71	37	33	40	30	34	28	72	36	17	30	29
G.....	69	43	36	37	31	31	28	72	36	38	29	24
H.....	69	42	37	30	29	22	22	67	40	28	26	26
I.....	65	41	36	50	24	24	24	67	28	28	26	24
J.....	65	42	33	37	31	20	20	68	28	28	33	21
K.....	65	39	32	31	24	34	30	62	40	40	38	32
L.....	64	43	39	38	38	32	34	67	40	36	39	40
M.....	62	40	42	34	34	34	32	60	44	36	33	29
N.....	62	47	40	47	43	34	37	64	36	26	34	27
O.....	62	40	36	35	37	30	26	64	44	33	29	26
P.....	55	39	29	19	17	18	14	62	36	20	22	18
Q.....	55	40	42	46	42	46	36	56	49	49	45	43
R.....	52	41	30	30	23	24	28	58	32	26	23	21
S.....	52	24	27	22	21	28	27	47	24	20	30	24
T.....	48	31	38	37	37	42	42	52	44	36	29	32
U.....	39	30	32	29	23	20	26	49	36	22	26	26
Average .	63	41	36	35	31	33	29	66	39	32	33	30
W^1.....	84	63	62	76	60	58	50	93	..	..	..	..
W^2.....	87	67	66	78	71	64	58	86	62	52	59	..
X^1.....	..	65	69	64	70	66	58	..	..	..	..	..
X^2.....	70	65	63	68	66	58	53	85	64	52	55	..
Y^1.....	..	70	72	67	72	69	69	..	..	..	..	..
Y^2.....	87	71	77	71	76	79	76	93	67	50	47	62
Y^3.....	85	67	78	70	68	65	60	90	70	51	55	58
Z^1.....	105	87	114	120	113	112	108	110	116	89	101	111
Z^2.....	112	90	120	116	108	120	111	113	128	96	99	115
Average for W, X, Y.....	83	69	70	71	69	66	61	89	66	51	54	..

NOTE.—W, X, and Y are teachers, Z a bookkeeper.

cent of the children varying five or less points, 19 per cent between 6 and 10, 5 per cent between 11 and 16. A feature of the results is that 26 per cent of the fifth-grade differences, 57 per cent of the

sixth-grade, 18 per cent of the seventh-grade, and 19 per cent of the eighth-grade differences were negative. This, together with the decline in the curves, would seem to indicate the effect of a fatigue factor. In this connection the recovery on Test I should be noted. Test I was of course the same as Test F, but in the case of the children was given first of the Tests I, J, K, and L a few weeks

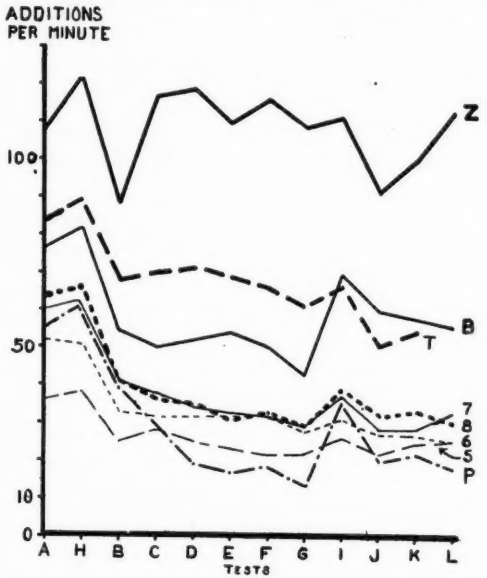

FIG. 12.—Graph of relative scores in tests of column addition. Vertical scale = number of additions per minute. Horizontal scale = tests corresponding to examples shown in Table V. Z = curve of bookkeeper; T = average scores of three mathematics teachers; B = best individual in the class; P = poorest individual. 7, 8, 6, 5 = curves of corresponding grade averages.

after the previous series. For individual Z and for the teachers (T), however, the two series were given one after the other on the same day.

In considering the results, the difference between Tests A, H, and B should be noted first. B is slightly harder than A and H because the zero and one combinations were omitted, but the real cause of the difference in score is the greater distance the hand must

travel in writing the answers. B was constructed to conform to the spacing in the succeeding tests. In Tests A and H the combinations were printed twenty on a line while in B there are but ten on a line. Even Z who is able to think the answers at a very high rate of speed cannot overcome the physical handicap of greater number of figures to be written and the greater space to be covered. The differences between the scores for A and B and between B and the other tests are quite constant. Therefore in general the individual who has a high score in the speed tests will show a corresponding score in "adding."

The general statement of the correlation between the two abilities will not be true of individuals as was shown above. In the figure, B is the curve of the best individual in the class and P of the poorest, and these two differ more in Tests E and F than they do in Tests A and H, that is, the difference between their ability in column addition is greater than the difference shown by their scores in the combinations. This does not mean, however, that the tests of the combinations do not measure abilities used in column addition; for even on the basis of the analysis of the abilities involved in column addition given by the authors, readiness of association is but one of several factors and the lack of correlation may be due to a defect in one of the other factors. The writer would add two factors to those given by the authors of the study being discussed, (1) attention span, (2) fatigue, and in this case the extreme drop of the curve of P is probably due to the effects of fatigue.

The relative level of the curves of the different grades is very significant. The seventh grade has overtaken the eighth and the sixth the seventh. The writer of course believes this due to changes in methods that have been made based upon the results of the testing work and expects to produce very much greater changes through knowledge and control of the various factors involved. It is impossible to teach efficiently a child to "add" when neither the teacher nor the children have more than such a vague general aim before them. At the same time the separation between the eighth-grade average and the curve of the teacher's score and between the teacher's and professional ability in addition show that

conditions are far from satisfactory. It is a relatively simple matter to develop "readiness of response," but to teach column addition is quite a different matter.

Some of the individual results from such tests, however, throw light upon the factors determining a score. In Fig. 13 are given a

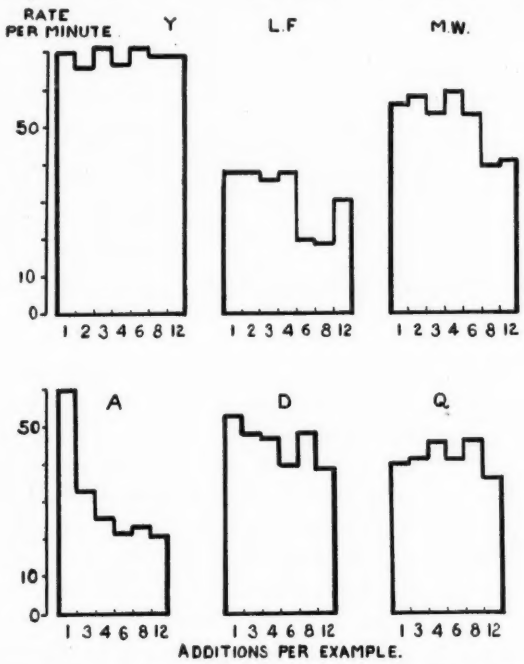

FIG. 13.—Change of rates with columns of varying length. Vertical scale = number of additions per minute; horizontal scale = number of additions in each example of the test. Test 1 corresponds to B in Table V, Test 2 to C, etc. Y, A, D, and Q represent the same individuals as in previous tables.

number of individual curves, so drawn as to make clear the changes in rates through the series. For curves Y, L, F, M, W the tests used were the same as those described above but the time allowance was just a minute for each test, and a longer rest was allowed between the tests. For during the second and third minutes of continuous work the scores even of adults begin to

fall off rapidly. Curves A, D, and Q are from the results given in the table. LF was seventh grade, and MW fifth grade. Individual Y (the writer) worked at a uniform rate, whatever the length of a column; the variations are of the order of chance variations. LF also worked a uniform rate for columns involving 1, 2, 3, and 4 additions, but an increase in the length of the column to 6 additions decreased the rate nearly one-half. In this case the cause is known; for the writer, watching, saw the girl when nearing the top of a column, hesitate, lose her place, and begin again. The limit of her attention span had been reached and it required an unusual effort, an extra grip on her attention, to reach the top of the column. Nearly every column was added twice with the consequent decrease in her rate. For MW much the same thing was true, but the drop came at 8 figures instead of 6 and the effect was not so marked.

In many cases causes were not as evident as in these two and all sorts of individual variations were found. A's curve has already been described. For minds of this type, the scores in the speed test give a totally false idea of the real ability in column addition. D represents a common type. Q illustrates the type that "warms up" to its work, but in all sooner or later a point is reached to go beyond which calls for greater effort, more inaccurate work, and rapid fatigue.

Out of 21 members of the eighth-grade class, the mistakes made were as follows:

Number of Test	Number of Individuals Making Errors	Number of Columns Added Incorrectly	Number of Test	Number of Individuals Making Errors	Number of Columns Added Incorrectly
Test A.....	2	2	Test E....	12	38
Test B.....	8	23	Test F.....	17	31
Test C.....	16	31	Test G....	21	61
Test D.....	17	44			

That is, here, as before, to make errors consumes time and the rate changes to correspond.

In bringing this discussion to a close, the writer feels that the evidence shows plainly that so far as chance variations are concerned, the result from a single measurement will ordinarily not

vary more than 5 points from the true score. That, on the other hand, the possibility of external accidents (breaking of pencil points, etc.) and of peculiar physical and mental condition radically modifying the achievement must *always* be kept in mind. That no attention should be paid to small variations from the standard, and that all large differences should be checked both by repeating the test and by comparison with similar scores in other tests; that the need for repeating measurements will occur at the most in about one case in ten. That if properly used, Test 1 measures one of the factors directly concerned in column addition and that the results rightly interpreted have a diagnostic value.

Finally, that the supreme thing in education is the fact of the very great variation in the abilities and needs of individuals. It is true that the writer urges the necessity for the measurement of the efficiency of the entire school, but it is also true that in no other way will the facts of the individual variation and of present gross inefficiency be revealed. The poorest school and the weakest teacher will, if they but keep at work enough years, turn out some naturally gifted individual to whose achievement they can forever afterward proudly point as a sample of their products. But at the present time no school has yet been found in which if the entire school be measured with standard tests under uniform conditions, the product of teaching is not shown to be so widely variable that so far as the particular ability is concerned, the school must be regarded as having failed utterly in accomplishing its purpose. At the present time the school is able to teach only those fitted by nature to respond readily to its teaching but if it were organized to detect and minister to the special need of the individual, vastly more could be accomplished. Definite aims, i.e., to render every child in the eighth grade able by June to add in four minutes 35 examples each a single column of 9 figures—and diagnostic tests—i.e., tests that will enable a teacher to determine exactly why a child can work but 23 such examples in the time allowed—and the experimental determination of efficient methods, are the lines along which progress will be made. The basic factor in education is thus the fact of individual differences in natural ability, and the supreme problem of future is the working out of administrative

methods of dealing with large masses of children, yet at the same time giving to each child the special attention and the special courses it needs, without sacrificing the benefits of class work and group instruction. Only as the Courtis Tests aid in this "discovery of the individual" and the laws of his development will they have accomplished their purpose.

BOOK REVIEWS

Manual of Moral and Humane Education. By FLORA HELM KRAUSE, Chicago: R. R. Donnelley & Sons. 8vo, pp. 271.

Educators are coming more and more to recognize the importance of moral education. Humane education is an important part of moral education and may very properly be made the starting-point for the same.

Mrs. Krause had in mind in writing this book the desire to demonstrate that the subject of moral and humane education can and should be taught not in a sentimental but in a truly educational way, that is, by correlating it with other subjects of the curriculum and working out for it a clear program, bringing together a body of literature to make it a real discipline.

For the teacher the most valuable part of the book is the carefully constructed outlines for teaching this subject in the grades. Not only is there a wealth of literature both prose and poetry, but the rich bibliographies, the great number of suggested themes make the book extremely handy for the teacher.

The course is made out for each month of the school year. There is work planned out for each grade in connection with four subjects of the curriculum: nature-study, art, literature, and civics.

This material the teacher may use to enrich his teaching of the subjects, thus not only doing his set work better, but incidentally inculcating valuable lessons in morals. And it seems to us that as a rule the most effective teaching of morals is that which is done incidentally in connection with the study of varied phases of life.

The book has already been put on the library and supplementary lists of the Chicago schools and is largely used in the schools of Illinois where humane education has been made part of the curriculum.

Every teacher in the grades should know this book.

C. H. HANDSCHIN

BOOKS RECEIVED

AMERICAN BOOK CO., NEW YORK

Household Science and Arts. By JOSEPHINE MORRIS. Cloth. 12mo. Pp. 256, With illustrations. Price $0.60.

Martha of California. By JAMES OTIS. Cloth. 12mo. Pp. 142. With illustrations. Price $0.35.

Mighty Animals. By JENNIE IRENE MIX. With an introduction by Dr. FREDERICK A. LUCAS. Cloth. 12mo. Pp. 144. With illustrations. Price $0.40.

High School Agriculture. By D. D. MAYNE and K. L. HATCH. Cloth. Pp. 432. Illustrated.

Schatzkästlein. By J. P. HEBEL. Edited with Notes and Vocabulary by MENCO STERN. Cloth. Pp. 179.

MACMILLAN, NEW YORK

Human Behavior; A First Book in Psychology for Teachers. By STEPHEN S. COLVIN and WILLIAM C. BAGLEY. Cloth. Pp. 336. With illustrations. Price $1.00 net.

The Posture of School Children. By JESSIE H. BANCROFT. Cloth. Pp. 327. With illustrations. Price $1.50 net.

School Hygiene. By FLETCHER B. DRESSLAR, Ph.D. Cloth. Pp. 369. Price $1.25 net.

HENRY HOLT & CO., NEW YORK

Modern Geography for High Schools. By ROLLIN C. SALISBURY, HARLAN H. BARROWS, and WALTER S. TOWER. Cloth. 12mo. Pp. 418. With illustrations and maps.

GINN & CO., CHICAGO

School and Home Gardens. By W. H. D. MEIER, A.M. Cloth. 12mo. Pp. 318. With illustrations. Price $0.80.

The Peirce Spellers. Book One and Book Two. By WALTER MERTON PEIRCE. Cloth. Pp. 131.

Minimum Essentials: Sheets of Graded Questions in Arithmetic and Language. By THOMAS E. THOMPSON. Paper. Pp. 44.

UNIVERSITY PRESS, CAMBRIDGE

A Source Book of English History. Volume I, 597–1603 A.D. Edited by ARTHUR D. INNES, M.A. Cloth, large crown 8vo. Pp. viii+384. With 31 illustrations. Price 4*s.* 6*d.*

Burke's Reflections on the French Revolution. Edited by W. ALISON PHILLIPS, M.A., and CATHERINE BEATRICE PHILLIPS. Cloth. Pp. 311. Price $1.25 net.

FREDERICK A. STOKES CO., NEW YORK

A Guide to the Montessori Method. By ELLEN YALE STEVENS. Cloth. Pp. 240. With illustrations. Price $1.00 net.

CHRISTOPHER SOWER CO., PHILADELPHIA

Culture, Discipline and Democracy. By A. DUNCAN YOCUM, PH.D. Cloth. Pp. 320. Price $1.25.

J. B. LIPPINCOTT CO., PHILADELPHIA

Noted Pennsylvanians. By WALTER LEFFERTS. Cardboard. Pp. 252. With illustrations.

The Princess and the Goblin. Simplified by ELIZABETH LEWIS. Cloth. Pp. 124. With illustrations in color. Price $0.50 net.

HOUGHTON MIFFLIN CO., BOSTON

Language Teaching in the Grades. By ALICE WOODWORTH COOLEY. ("Riverside Educational Monographs.") Cloth. Pp. 88. Price $0.35.

New Ideals in Rural Schools. By GEORGE HERBERT BETTS, PH.D. ("Riverside Educational Monographs.") Cloth. Pp. 128. Price $0.60.

Preparing for Citizenship. By WILLIAM BACKUS GUITTEAU, PH.D. Cloth. Pp. 238. With illustrations.

Seventh Reader. By JAMES H. VAN SICKLE and WILHELMINA SEEGMILLER assisted by FRANCES JENKINS. ("The Riverside Readers.") Cloth. Pp. 276. With illustrations. Price $0.55.

The Japanese Twins. By LUCY FITCH PERKINS. Cloth. Pp. 178. With illustrations. Price $0.50.

The Second Book of Stories for the Story-Teller. By FANNY E. COE. Cloth. Pp. 209. Price $0.80.

THE CENTURY CO., NEW YORK

Jataka Tales. Re-told by ELLEN C. BABBITT. Cloth. Pp. 92. With illustrations. Price $0.40 net.

Panama, Past and Present. By FARNHAM BISHOP. Cloth. Pp. 271. With illustrations. Price $0.75 net.

RAND MCNALLY & CO., NEW YORK

Cromwell, England's Uncrowned King. By ESSE V. HATHAWAY. ("Little Lives of Great Men Series.") Cloth. Pp. 177. With illustrations.

MANUAL ARTS PRESS, PEORIA

Inexpensive Basketry. By WILLIAM S. MARTEN. Paper. Pp. 45. With illustrations. Price $0.25.

Leather Work. By ADELAIDE MICKEL. Paper. Pp. 53. With illustrations. Price $0.75.

SOCIAL CENTER PUBLISHING CO., DETROIT

Bedrock: Education and Employment, the Foundation of the Republic. By ANNIE L. DIGGS. Cloth. Pp. 70. Price $0.25.

SURVEY ASSOCIATES, INC., NEW YORK (RUSSELL SAGE FOUNDATION)

Medical Inspection of Schools. By LUTHER H. GULICK, M.D., and LEONARD P. AYRES, PH.D. Cloth. Pp. 224. With illustrations.

CARNEGIE FOUNDATION FOR THE ADVANCEMENT OF TEACHING

Seventh Annual Report of the President and of the Treasurer. Paper. Pp. 194.

UNIVERSITY OF MISSOURI, COLUMBIA, MO.

Geography of Missouri ("Education Series," Vol. I, No. 4). By FREDERICK V. EMERSON. Paper. Pp. 74.

PUBLIC EDUCATION ASSOCIATION, PHILADELPHIA

The German System of Industrial Schooling. By RALPH C. BUSSER, LL.D., American Consul, Erfurt, Germany. Paper. Pp. 63.

RUSSELL SAGE FOUNDATION, NEW YORK

Psychological Tests in Vocational Guidance. By LEONARD P. AYRES, PH.D. Paper. Pp. 5. Price $0.05.

The Effect of Promotion Rates on School Efficiency. By LEONARD P. AYRES, PH.D. Paper. Pp. 13. Price $0.05.

STURGIS & WALTON CO., NEW YORK

The Education of To-Morrow. By ARLAND D. WEEKS. With an Introduction by M. V. O'SHEA. Cloth. Pp. 232. Price $1.25 net.

WARWICK & YORK INC., BALTIMORE

Variations in the Grades of High School Pupils. By CLARENCE TRUMAN GRAY, A.M. ("Educational Psychology Monographs.") Cloth. Pp. 120. Price $1.25.

CURRENT EDUCATIONAL LITERATURE IN THE PERIODICALS[1]

IRENE WARREN[2]
Librarian, School of Education, University of Chicago

Arnold, Felix. Politics, efficiency, and retardation. Psychol. Clinic 7:35–38. (Ap. '13.)

Art schools for girls. Lit. D. 46:1010–11. (3 My. '13.)

Atkinson, Eleanor. Lincoln's alma mater. Harper 126:942–47. (My. '13.)

Ayres, Leonard P. Psychological tests in vocational guidance. J. of Educa. Psychol. 4:232–37. (Ap. '13.)

A brief summary of what has been done and of the prospects of future work.

Baldwin, Bird T. The boy of high school age. Relig. Educa. 8:23–32. (Ap. '13).

The type of religious and moral training suited to the adolescent boy.

Blankenburg, Rudolph. The municipal need of technically trained men. II. Sci. Am. 108:342–43. (12 Ap. '13.)

Blount, Alma. Normal school training for the teaching of English in elementary schools. English J. 2:215–20. (Ap. '13.)

Bredvold, Louis L. Suggestions for reconstruction in high school English. Educa. 33:492–98. (Ap. '13.)

Brown, F. C. Scholarship and the state. Pop. Sci. Mo. 82:510–15. (My. '13.)

Brown, Horace G. Dramatization in history teaching. El. School T. 13:425–33. (My. '13.)

A classification of different sorts of dramatization with their uses, and an outline for dramatic illustration of early American history.

Calfee, Marguerite. College freshman and four general intelligence tests. J. of Educa. Psychol. 4:223–31. (Ap. '13.)

Low correlations were found between college grades and card-sorting, card-dealing, alphabet-sorting, and the minor test.

[1] *Abbreviations.*—Educa., Education; El. School T., Elementary School Teacher; English J., English Journal; J. of Educa. (Bost.), Journal of Education (Boston); J. of Educa. Psychol., Journal of Educational Psychology; Lit. D., Literary Digest; Pop. Sci. Mo., Popular Science Monthly; Psychol. Clinic, Psychological Clinic; Relig. Educa., Religious Education; School R., School Review; Sci. Am., Scientific American.

[2] Annotations by Dr. Frank N. Freeman.

Clancy, George C. The weak student in freshman English composition. English J. 2:235–40. (Ap. '13.)

Colvin, Stephen S. The practical results of recent studies in educational psychology. School R. 21:307–22. (My. '13.)

Cox, John Harrington. Preparation for teaching college English. English J. 2:207–14. (Ap. '13.)

Dearborn, Walter F. The practical results of recent studies in educational statistics. School R. 21:297–306. (My. '13.)

(The) decline of book-reading. Lit. D. 46:829–30. (12 Ap. '13.)

Fargo, Lucile F. The place of the library in high school education. Educa. 33:473–77. (Ap. '13.)

Foster, William T. The college president. Science 37:653–58. (2 My. '13.)

Gayler, G. W. Vocational training as a preventive of crime. Psychol. Clinic 7:39–46. (Ap. '13.)

A general plea for vocational training.

Heck, W. H. A second study of mental fatigue in relation to the daily school program. Psychol. Clinic 7:29–34. (Ap. '13.)

Finds slight amount of decrease in efficiency in afternoon as measured by arithmetic tests.

Hendrick, Burton J. Six thousand girls at school. McClure 41:46–57. (My. '13.)

Hilton, Henry H. Cost of textbooks per pupil. J. of Educa. (Bost.) 77:369. (3 Ap. '13.)

Immodest college advertising. Lit. D. 46:950. (26 Ap. '13.)

Jones, H. Bedford. The personal influence of the teacher. Educa. 33:499–502. (Ap. '13.)

Lakenan, Mary E. The whole and part methods of memorizing poetry and prose. J. of Educa. Psychol. 4:189–98. (Ap. '13.)

A retrial of the two methods of memorizing resulting to the advantage of the whole method.

Lewis, E. E. Practice teaching in model schools. El. School T. 13:434–44 (My. '13.)

A statistical study of the organization of practice teaching.

Maurer, Elizabeth King. The school and the advertiser. Craftsman 24:84–85. (Ap. '13.)

Moore, Ernest C. Improvement in educational practice. School R. 21:323–33. (My. '13.)

Neglected educational material. Lit. D. 46:1004. (3 My. '13.)

Pedersen, Victor Cox. Sex hygiene in the public schools. Good Housekeeping 56:532–34. (Ap. '13.)

Rapeer, Louis W. The secondary school teachers of Prussia. Educa. 33:478–87. (Ap. '13.)

Richardson, Charles F. The problem of waste in the college lecture. School R. 21:334–43. (My. '13.)

Riordon, Raymond. A new idea in state schools that will build up character and body as well as brain: a suggestion for California. Craftsman 24:52–60. (Ap. '13.)

Scott, Jonathan French. The decline of the English apprenticeship system. El. School T. 13:445–54. (My. '13.)

The continuation of the discussion in a previous article.

Shaer, I. Special classes for bright children in an English elementary school. J. of Educa. Psychol. 4:209–22. (Ap. '13.)

A system of flexible promotion.

Shull, Charles A. Recent legislation affecting educational institutions in Kansas. Science 37:622–24. (25 Ap. '13.)

Discusses the law consolidating the educational administration of the state.

Stevens, Ellen Yale. The Montessori movement. McClure 41:182–86. (My. '13.)

Terman, Lewis M., and Hocking, Adeline. The sleep of school children, its distribution according to age, and its relation to physical and mental efficiency. J. of Educa. Psychol. 4:199–208. (Ap. '13.)

Discusses low correlations which were found between amount of sleep and intelligence, school success and nervous traits.

Thomas, C. E. English for industrial pupils. English J. 2:241–46. (Ap. '13.)

Todd, Helen M. Why children work. McClure 40:68–79. (Ap. '13.)

Children's confessions to a factory inspector.

Wetzel, William A. The old and new systems of education, a contrast. Educa. 33:503–12. (Ap. '13.)

Wilson, Jessie Woodrow. What girls can do for girls. Good Housekeeping 56:437–45. (Ap. '13.)